EXHIBIT 1

FILED UNDER SEAL

CLEMENT SETH ROBERTS (STATE BAR NO. 209203)
croberts@orrick.com
BAS DE BLANK (STATE BAR NO. 191487)
basdeblank@orrick.com
ALYSSA CARIDIS (STATE BAR NO. 260103)
acaridis@orrick.com
EVAN D. BREWER (STATE BAR NO. 304411)
ebrewer@orrick.com
ORRICK, HERRINGTON & SUTCLIFFE LLP
The Orrick Building
405 Howard Street
San Francisco, CA 94105-2669
Telephone: +1 415 773 5700
Facsimile: +1 415 773 5759

SEAN M. SULLIVAN (*pro hac* vice)
sullivan@ls3ip.com
MICHAEL P. BOYEA (*pro hac* vice)
boyea@ls3ip.com
COLE B. RICHTER (*pro hac* vice)
richter@ls3ip.com
LEE SULLIVAN SHEA & SMITH LLP
656 W Randolph St., Floor 5W
Chicago, IL 60661
Telephone: +1 312 754 0002
Facsimile: +1 312 754 0003

Attorneys for Sonos, Inc.

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

GOOGLE LLC,

Plaintiff and Counter-defendant,

v.

SONOS, INC.,

Defendant and Counter-claimant.

Case No. 3:20-cv-06754-WHA
Related to Case No. 3:21-cv-07559-WHA

REBUTTAL EXPERT REPORT OF DOUGLAS C. SCHMIDT

Term	Sonos	Google
	meaning, which is "a data network spanning a limited geographical area, such as a home or office"	
"network interface"	Plain and ordinary meaning, which is "a physical component of a device that provides an interconnection with a data network"	Plain and ordinary meaning
"playback device"	"data network device configured to process and output audio"	Plain and ordinary meaning
"data network" (*see* "local area network," "network interface," "playback device")	Plain and ordinary meaning, which is "a medium that interconnects devices, enabling them to send digital data packets to and receive digital data packets from each other"	Plain and ordinary meaning
"multimedia"	Plain and ordinary meaning, which is "any type of media that comprises audio (including audio alone)"	Plain and ordinary meaning
"cloud"	Plain and ordinary meaning	"over a network"
"playback queue"	Plain and ordinary meaning	"an ordered list of multimedia items that is selected by the user for playback"
"resource locator"	Plain and ordinary meaning	"address of a resource on the Internet"

VIII. SONOS'S DEVELOPMENT OF "PLAY-TO-SONOS" TECHNOLOGY

136. Dr. Bhattacharjee opines that "none of the asserted claims are entitled to Sonos's alleged July 15, 2011 invention date …." Bhatta. Op. Report, ¶91. Dr. Bhattacharjee then addresses evidence previously cited by Sonos regarding Sonos's development of the "Play-to-Sonos" (or "Direct Control") technology. Bhatta. Op. Report, ¶¶92-131.

137. Contrary to Dr. Bhattacharjee's positions, it is my opinion that the evidence shows that Sonos was in possession of many of the features recited in the Asserted Claims of the '033 Patent in July 2011 including a "remote playback queue." I note that, to the extent that Dr.

Bhattacharjee's invalidity positions are credited, then it is my opinion that the inventors conceived of the subject matter of the '033 Patent by no later than July 2011. My opinion is based at least on Dr. Bhattacharjee's broad assertations that his prior art systems disclose or suggest the claimed inventions and the evidence discussed below regarding the development of the "Play-to-Sonos" technology in July 2011.

138. In this regard, I understand that Mr. Coburn and Ms. Hoadley were working on the "Play-to-Sonos" (or "Direct Control") initiative with others at Sonos. *See, e.g.*, Hoadley Dep. Tr., 173:7-174:12; Coburn Dep. Tr., 171:1-21. For example, I understand that Ms. Hoadley and Rob Lambourne worked together on "user experience" (UX) concepts in July 2011 (*see, e.g.*, SONOS-SVG2-00027283) and Mr. Coburn and Ron Kuper worked together on system architecture, APIs, and the like (*see, e.g.*, Coburn Dep. Tr., 223:13-19, 226:23-227:3).[6] In this regard, I understand that evidence I discuss below that was not necessarily explicitly authored by Mr. Coburn and/or Ms. Hoadley nevertheless reflects their conception and development of the '033 Patent technology. *See, e.g.*, *id.*; SONOS-SVG2-00026264 (referencing Play-to-Sonos team call in mid-July 2011 where Tad summarized technical options).[7]

139. As Ms. Hoadley explained, "Play-to-Sonos was the ability to play music using a non-Sonos app on the Sonos system" or "[a]llowing people to use non-Sonos applications to play music through the Sonos system." Hoadley Dep. Tr., 111:17-18, 114:3-4; SONOS-SVG2-00027126 [Hoadley July 7, 2011 Email], 26 ("Let's explore the options for creating code that let's 3rd party apps control Sonos."); *see also, e.g.*, Coburn Dep. Tr., 16:14-19. More specifically, Ms. Hoadley explained that, "as mobile devices were becoming more prevalent and music services were becoming more commonly used," Sonos recognized a "couple of different problems at the time" that they were trying to solve –including "how do we allow multiple people to collaborate and create a joint music listening experience" in the home that could include people "who were there who didn't necessarily have the Sonos app on their device" or "who weren't necessarily familiar with how Sonos worked" but may have been familiar with a "music service[]" that was "becoming more commonly used"–and testified that "Play-to-Sonos" was a solution to those problems.

[6] Conversation with Mr. Millington.
[7] Conversation with Mr. Millington.

Hoadley Dep. Tr., 95:5-96:1.

140. On July 11, 2011, Ms. Hoadley followed up with edits to a document that states "[u]sers who listen to their favorite music service using native apps by the service on their smart phones and tablets would like an easier (shorter 'time-to-music') and more familiar way of playing music from the service on their Sonos …." SONOS-SVG2-00027283 [Hoadley July 11, 2011 Email]; SONOS-SVG2-00027285 [SONOS PLAY TO functionality-jh.docx], 85. Ms. Hoadley also stated, "[w]hen actively using a music service app (such as when commuting), it is much faster to walk in your house and play that music on Sonos than opening the Sonos app and then taking the steps to select that service and find the music to play." *Id*.

141. Just days later, in an email sent on July 15, 2011, Mr. Lambourne summarized scenarios that Ms. Hoadley and Mr. Coburn were seeking to address as shown below:

There are roughly 4 scenarios on the table. I apologize if this is repeating some of what has already been said, but the previous thread got too technical .

1. Full Play-To integration in Spotify
   - User can control music choice, transport control, zone grouping and volume of the Sonos system from their Spotify UI.
   - Now Playing information would need to be synchronized between Sonos and Service App so it looks to the user like the Spotify app is a remote control for Sonos.
   - This clearly requires the most amount of design and dev work for Sonos and our partners, but it would provide the most seamless UX
2. Full Play-To integration as an OS layer on Android
   - All of the benefits of the above solution, but applied at an OS layer. We image a button applied to all screens (or via the Android "menu' button) that when pressed would invoke the Play-To features that say .
3. Line-in style feature (Play-To Lite)
   - A simpler solution than 1&2 in which Sonos provides a button on the Now Playing screen (or via the Android Menu) that provides the user with a choice between playing sound to the device speakers (normal mode) and playing to Sonos ZonePlayers (Sonos mode).
   - The UI would require that the Service app know about ZonePlayers and Zone groups.
   - When in Sonos mode, Sonos would be set to play volume at 'fixed level' like it does with the iPhone dock playing.
   - Current track information would need to be synched between Sonos and Spotify.
   - Transport controls are a nice-to-have (like iPhone dock in "what's playing on iPhone' mode).
   - If transport controls are not available, then we'd do a version that treats the Spotify stream as a line-in source (when Spotify is streaming, the Sonos user can press stop on a CR200, but this doesn't stop the Spotify music, it just stops the Sonos system from playing it through).
4. Throw over the wall (Sonos URI hhandler): Music Discovery enabler, but not Sonos control.
   - Spotify and Sonos Now Playing screens do not sync.
   - As a user browses music on Spotify, he/she can send tracks to the Sonos Queue (Play now or Add to Queue).
   - The UI would require the Spotify app to go into "Sonos mode" either by a manual button press, or it could be invoked automatically when Spotify joins the wifi of a system that includes Sonos.
   - The Sonos mode button would include the selection of zones, or group, that the mode will affect.
   - Then, as the user clicks on playable items, a menu item would popup asking if the music should be a Played Now or Added to the Queue.
   - As items are sent to Sonos, the partner UI would not play the items on the device itself. So the Now Playing screens on device and Sonos would be completely different and we'd need to encourage the partner to change their UI to NOT go to the Now Playing screen when items are chosen for playback.

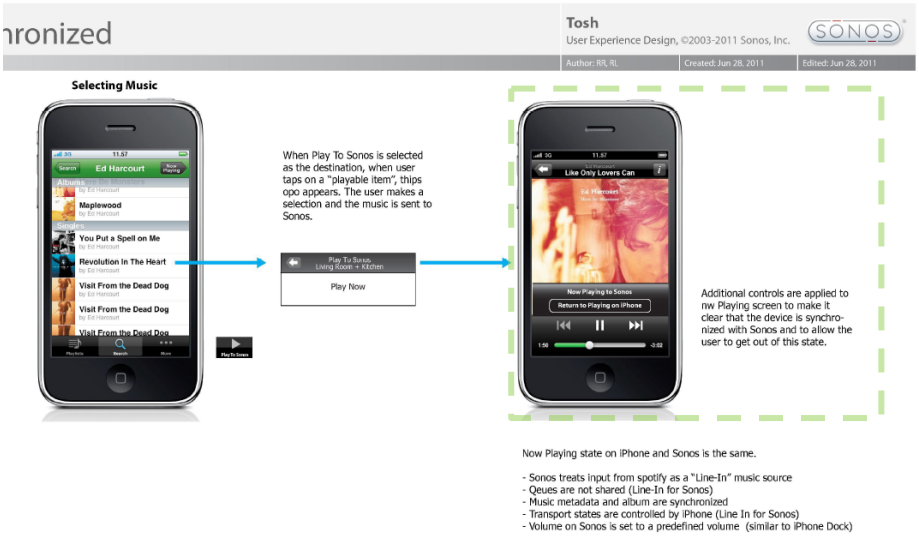
SONOS-SVG2-00027080, 80-81 (annotations added). For instance, Mr. Lambourne stated "Full Play-To integration in Spotify[:] [u]ser can control music choice, transport control, zone grouping and volume of the Sonos system from their Spotify UI" and "Sonos provides a button on the Now Playing screen … that provides the user with a choice between playing sound to the [smartphone] speakers (normal mode) and playing to Sonos ZonePlayers (Sonos mode)." SONOS-SVG2-00027347, 47.

142. On July 18, 2011, Mr. Lambourne followed up with a presentation that included the diagram below illustrating a selection of the "Play to Sonos" icon and a selection of multiple Sonos

"zone players" ("Kitchen" and "Living") from the identified Sonos "zone players" on the local area network:

SONOS-SVG2-00027080; SONOS-SVG2-00027087 [Spotify Future Wireframes], 97 (annotation added). In my opinion, this diagram reflects what Ms. Hoadley was referring to on July 11th.

143. The July 18, 2011 presentation from Mr. Lambourne also included the following diagram illustrating and describing the smartphone's UI after the "Play-to-Sonos" button was selected:



SONOS-SVG2-00027087, 97-98 (annotations added).

144. As shown above, after receiving user input indicating a selection of at least one Sonos "zone player," the user-facing appearance and functionality of the smartphone changed, thereby confirming that the smartphone detected such an indication. *See also, e.g.,* SONOS-SVG2-00027283 [Hoadley July 11, 2011 Email]; SONOS-SVG2-00027285 [SONOS PLAY TO functionality-jh.docx], 86-87 ("In effect[,] he/she will be using the partner App as a remote control for Sonos" such that "[a]ll playback functions on the partner app should have a direct impact on the sound heard through Sonos speakers."); SONOS-SVG2-00027080, 80-81 (Mr. Lambourne stating that "[u]ser can control music choice, transport control, zone grouping and volume of the Sonos system from their Spotify UI" and "Now Playing information would need to be synchronized between Sonos and Service App so it looks to the user like the Spotify app is a remote control for Sonos.").

145. I understand that "Play-to-Sonos" included at its core what Sonos referred to as "zone players," which were intelligent data network devices that operated on a local area network typically in a user's home and were capable of processing and outputting audio either (i) in the form of sound from built-in speakers or (ii) in the form of an audio signal that was provided to external speakers. *See, e.g.*, Millington Dep. Tr., 78:11-79:18, 114:7-16, 142:12-23; SONOS-SVG2-00059406 [Sonos Controller for iPad User Guide 2010], 12, 13 ("Extends the wireless range

of your Sonos Multi-Room Music System when you want to set up a music zone in an area that lies beyond your current SonosNet wireless range."), 14-18.[8] I further understand that to enable a mobile device to communicate with the Sonos "zone players" for "Play-to-Sonos," the mobile device would connect to the local area network. *See e.g.*, SONOS-SVG2-00059406 [Sonos Controller for iPad User Guide 2010], 13 ("The Sonos Controller for iPhone or iPod touch[.] Lets you wirelessly control your Sonos system over your home Wi-Fi network.").[9]

146. I also understand that for "Play-to-Sonos," each of the Sonos "zone players" could communicate with one or more cloud servers of a given music streaming service, such as Rhapsody or Spotify, to obtain media items for playback. *See, e.g.*, Millington Dep. Tr., 142:12-22, 151:23-152:8; SONOS-SVG2-00059406 [Sonos Controller for iPad User Guide 2010], 42-52 (explaining that "Sonos is compatible with several music services" each being "an online music store or online service" including Audible.com, Deezer, iheartradio, Last.fm, Napster, Pandora, Rhapsody, Sirius, and Spotify).[10] In this regard, a POSITA would have appreciated that music-streaming services of the time like Rhapsody and Spotify each had one or more cloud servers that contained media content that devices like Sonos's "zone players" could retrieve.[11] And as discussed before, Spotify was one of the named example music-streaming services that Ms. Hoadley and Mr. Coburn had in mind when conceiving "Play-to-Sonos." *See, e.g.*, SONOS-SVG2-00027126 [Hoadley July 7, 2011 email]; SONOS-SVG2-00027347 [Lambourne July 15, 2011 email].

147. Further focusing on the cloud aspects of the Sonos's "Play-to-Sonos" initiative, in a July 9, 2011 email, Mr. Kuper, who was working with Mr. Coburn[12], states "we should consider giving 3rd party apps the ability to sync into the cloud, using web services and representation that is like a Sonos queue + what's playing now. Then the Sonos system can grab that state and load the queue from what's in the cloud." SONOS-SVG2-00027288, 88.

148. Moreover, in a July 14, 2011 email, Mr. Coburn states "Ron[Kuper], Devon and I have been discussing a possible server-to-client 'near real time' event/notification system which

[8] Conversation with Mr. Millington.
[9] Conversation with Mr. Millington.
[10] Conversation with Mr. Millington.
[11] Conversation with Mr. Millington.
[12] Conversation with Mr. Millington.

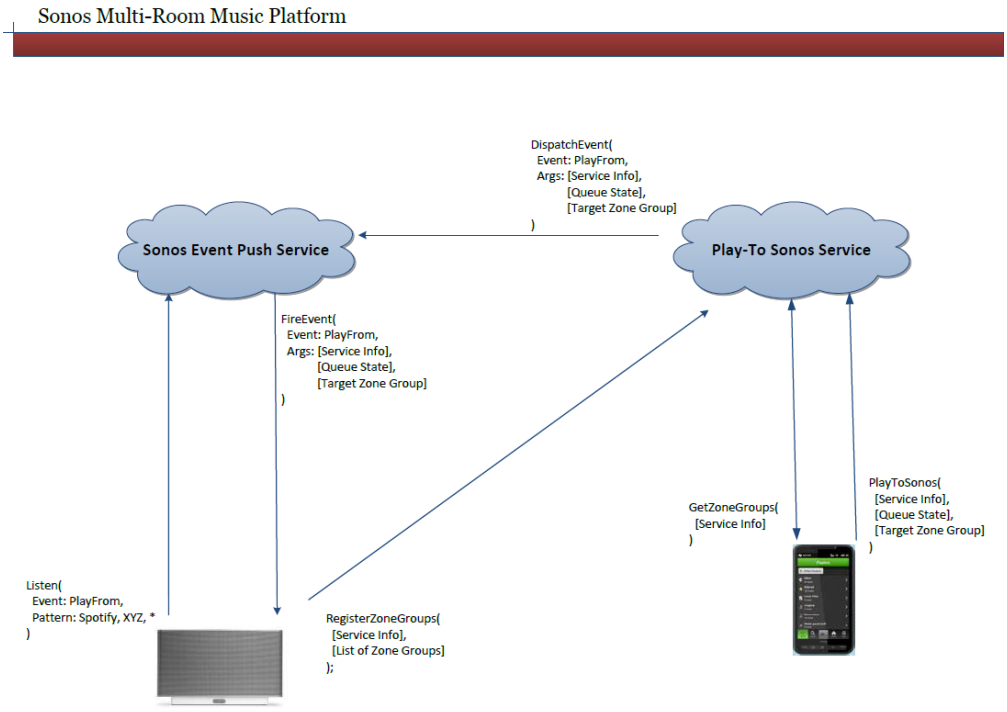
could be a key part of any approach here. It would allow the Sonos server to send an event to a ZP in near-real-time to tell it to start playing a track/playlist/etc and could be used to send volume change commands and transport control commands." SONOS-SVG2-00027244, 44-45. Mr. Coburn in that same email describes a "general technical approach[] for getting the music to Sonos" called "the 'throw a track (or other playback object) over the wall to Sonos' feature" that involved "passing the service-specific ID for a playable item (track, playlist, artist, programmed radio station, etc.) to Sonos and telling Sonos either to add the item to the queue or play it now …." *Id.*, 44; *see also, e.g.,* SONOS-SVG2-00027087 [Lambourne July 18, 2011 presentation], 98 (illustrating smartphone causing zone players to playback multimedia content); SONOS-SVG2-00027283 [Hoadley July 11, 2011 Email]; SONOS-SVG2-00027285 [SONOS PLAY TO functionality-jh.docx], 87 ("[T]oday, our ZonePlayers phone home to the service and there's a handshake that happens that allows our players to authenticate to the music service and to stream music directly from it.").

149. Additionally, a July 15, 2011 email from Mr. Kuper states "Tad [Coburn] asked me to diagram how the play-to-Sonos would work using the IDs thrown over into the cloud" and includes the following explanation along with an attached "PlayToSonos" diagram:

> One piece of this is that we want to introduce a new centralized web service for pushing events out to Sonos equipment. The idea is that any Zone or CR that wants to get just-in-time events connects to this service, and then asks to listens for events that match a particular pattern. We would use this service not just for Play-To Sonos, but also to allow us to get just-in-time updates to playlists, starred tracks, etc. (I also envision using this service for any time we want to push events out to our equipment – maybe someday we'd want CS to be able to poke at customer's system if necessary, or we could hook this into our upgrade mechanism somehow.)
>
> Assuming we have this event service, I am envisioning an event called PlayFrom, that takes as parameters (conceptually) the following:
>
> - Service info – the service ID and user name.
> - Queue state – could be a single ID or a list of IDs, plus an index and a time offset. I think we need more than just a single ID, because even if the single ID is a playlist we'd want to resume playback from wherever the user left off.
> - Target zone group.
>
> There would be a complimentary web service that we'd expose to all content partners, the "Play-To Sonos Service". Our HHs talk to this service to associate Zone Groups with a particular user, and the content partner client talks to this service to enumerate Zone Groups and ask for a Play-To action to be initiated.

SONOS-SVG2-00027224 [Kuper July 15, 2011 email], 24; *see also, e.g.*, Coburn Dep. Tr., 221:13-222:9, 223:25-224:7, 231:16-19 ("Well, it's fairly evident to me from the term 'queue state' that it's referring to a queue…").

150. The attached "PlayToSonos" diagram illustrated the state of the "Play-to-Sonos" architecture:



SONOS-SVG2-00027229[13] (annotated); *see also, e.g.*, Coburn Dep. Tr., 192:10-22 ("[T]his diagram uses a higher level concept which it calls queue state, which could contain or – or would contain some sort of identifier identifying one or more tracks to be played."), 231:16-19 ("Well, it's fairly evident to me from the term 'queue state' that it's referring to a queue…").

151. Specifically, the July 15, 2011 email from Mr. Kuper that included the "PlayToSonos" diagram shows the smartphone sending a "PlayToSonos" message containing "queue state" information that ends up in a "PlayFrom" message provided to the Sonos "zone player" causing it to play back multimedia content (e.g., a song from Spotify) and the email explains that the "queue state" information would include information "to resume playback from wherever the user left off." SONOS-SVG2-00027224 [Kuper July 15, 2011 email], 24; SONOS-SVG2-00027229 [PlayToSonos diagram].

152. In addition to the evidence that I discussed above, I have seen other evidence that

[13] Dr. Bhattacharjee points out that the metadata field for this document lists "Singh Harbaldeep" as the "author." Bhatta. Op. Report, ¶103. However, I understand that Mr. Harbaldeep was employed by Sonos from September 7, 2010 to April 29, 2011. Conversation with Chris Butts. Given that the "created" and "modified" metadata fields for this document list July 15, 2011, it is my opinion that the listing of Mr. Harbaldeep in the author field is an error and likely indicates that an underlying document previously authored by Mr. Harbaldeep had been repurposed.

after July 15, 2011, Mr. Coburn and Ms. Hoadley continued refining the "Play-to-Sonos" technology with the support of their colleagues, such as Messrs. Lambourne, Kuper, Millington, and Schulert, that continued until the preparation and filing of the patent application on December 30, 2011 to which the '033 Patent claims priority.[14] The following is exemplary evidence that demonstrates their reasonably continuous efforts toward the reduction to practice of "Play-to-Sonos":

- SONOS-SVG2-00027067; SONOS-SVG2-00027087 – email with attached presentations from Mr. Lambourne sent to Ms. Hoadley and Mr. Coburn on July 18, 2011 further outlining the "Play-to-Sonos" initiative
- SONOS-SVG2-00026278 – email chain between Messrs. Coburn, Lambourne, Kuper, Schulert, and Millington and Ms. Hoadley between July 19-20, 2011 further discussing the "Play-to-Sonos" initiative
- Hoadley Dep. Tr., 149:23-152:20 – Ms. Hoadley and others from Sonos meeting with Spotify in Stockholm between July 19-20, 2011 seeking a partner to collaborate on "Play-to-Sonos" implementation
- SONOS-SVG2-00026264; SONOS-SVG2-00026265 – email with attached presentation from Ms. Hoadley to Messrs. Coburn, Lambourne, and Schulert on August 7, 2011 further outlining the "Play-to-Sonos" initiative
- SONOS-SVG2-00026251; SONOS-SVG2-00026252 – email with attached presentation from Ms. Hoadley to Messrs. Coburn, Lambourne, and Schulert on August 16, 2011 further outlining the "Play-to-Sonos" (or "Send to Sonos") initiative for Sonos execs and team leaders to facilitate staffing for the initiative
- SONOS-SVG2-00027003; SONOS-SVG2-00027005 – email chain and attachment between Messrs. Coburn, Schulert, and Millington between September 8-20, 2011 further discussing implementation details of the "Play-to-Sonos" initiative
- SONOS-SVG2-00026992; SONOS-SVG2-00026993 – email chain and attachment between Messrs. Schulert and Millington on September 8, 2011 discussing implementation details of the "Play-to-Sonos" initiative
- SONOS-SVG2-00027496 – email from Mr. Coburn to Messrs. Schulert and Millington on September 21, 2011 outlining prototype implementation plan for the "Play-to-Sonos" initiative
- SONOS-SVG2-00027467 – email chain between Messrs. Coburn, Lambourne, Kuper, Schulert, and Millington between September 22-23, 2011 discussing possible implementation details of the "Play-to-Sonos" initiative
- SONOS-SVG2-00027169 – email chain between Messrs. Coburn and David Taylor and Ms. Hoadley on October 4, 2011 outlining next steps for "Play-to-Sonos" initiative
- SONOS-SVG2-00027162 – email chain between Messrs. Coburn and Lambourne and Ms. Hoadley on October 5, 2011 further discussing breakdown of internal teams and upcoming two-month timeline for "Play-to-Sonos" initiative
- SONOS-SVG2-00027037 – email from Mr. Coburn scheduling "Play-to-Sonos" meeting on October 12, 2011
- SONOS-SVG2-00131006 – email from Ms. Hoadley to Messrs. Millington, Schulert,

[14] Conversation with Mr. Millington.

and Lambourne on October 20, 2011 detailing staffing requirements for "Play-to-Sonos" initiative

- SONOS-SVG2-00026246 – email from Mr. Coburn sent November 2, 2011 to Messrs. Lambourne, Kuper, Schulert, and Millington and Ms. Hoadley scheduling meeting to discuss "Play-to-Sonos" initiative
- SONOS-SVG2-00026246 – email from Mr. Coburn sent to Messrs. Lambourne, Kuper, Schulert, and Millington and Ms. Hoadley on November 7, 2011 summarizing action plan from meeting regarding the "Play-to-Sonos" initiative
- U.S. Patent Appl. No. 13/341,237 – patent application describing the "Play-to-Sonos" initiative filed on December 30, 2011, which I understand took several weeks (at a minimum) to prepare[15] and, given the holidays, was therefore likely started in November 2011.

IX. OVERVIEW OF THE PRIOR ART

153. In this section, I provide a respective overview of the primary and secondary references that Dr. Bhattacharjee relies upon.

A. YouTube Remote (YTR) System

1. General Overview of YTR System

154. Dr. Bhattacharjee provides opinions that the Asserted Claims of the '033 Patent (i.e., claims 1-2, 4, 9, 11-13, and 16) and Asserted Claims 14-15, 18-19, and 25 of the '615 Patent are anticipated or rendered obvious by a YouTube Remote ("YTR") System.

155. As explained in more detail below, the YouTube Remote ("YTR") System included: (1) a YTR software application installed on one or more computer devices, such mobile phones, that were also referred to as "remotes"; (2) a "Lounge Server," also referred to as an "MDx Server," that operated using an "MDx Protocol"; and (3) one or more "Leanback Screens," such as TVs, that were also referred to as "Connected Screens" (or simply "Screens" for short). According to Dr. Bhattacharjee, "[t]he YTR application could be used for local playback on the mobile device ('Local Playback Mode')," but "[w]hen video playback was transferred from the YTR application on the mobile device to one or more Screens, the YTR application would serve as a remote control that could be used to control playback on the Screens ('Remote Control Mode')." Bhatta. Op. Report, ¶157.

156. Dr. Bhattacharjee points to three versions – Versions 1-3 – of the YTR application

[15] This timeline is consistent with my own patent-filing experience. *See also, e.g.*, https://milleripl.com/blogs/patents/how-long-does-it-take-to-get-a-patent [SONOS-SVG2-00226859].

disclosure.

C. Limitation 1.4 – "Remote Playback Queue Provided By a Cloud-Based Computing System Associated with a Cloud-Based Media Service"

938. Dr. Bhattacharjee opines that the '033 Patent lacks written description support for "a remote playback queue provided by a cloud-based computing system associated with a cloud-based media service" and that, "[t]o the extent there is written description support for the term 'remote playback queue' at all, that description would only support a playback queue in a third-party application." Bhatta. Op. Report, ¶¶684-93. I disagree.

1. The '033 Patent Has Written Description Support for "Remote Playback Queue"

939. To start, as I explained in my opening report, the '033 Patent provides written description support for "a remote playback queue" including "a remote playback queue" that is specifically "provided by a cloud-based computing system associated with a cloud-based media service."

940. For example, the '033 Patent describes an embodiment in which a user listens to music from an online media service on the user's MacBook Pro, such as "turntable.fm or other virtual room that a user can enter to choose from a plurality of ***online disc jockeys (DJs) deciding what to play next*** …." '033 Patent, 12:65-13:3. The user then decides to play that music on the user's "household playback system" (comprising one or more "playback devices")[37] by selecting "[a] button or other indicator … added to the turntable.fm Web application" that "switch[es] the content being played to the playback system for output (e.g., to the Sonos™ system rather than … the Mac Book™)." *Id.*, 13:3-13:11. A POSITA would understand from this example along with the '033 Patent's disclosure as a whole that the "playback queue" is "remote" of both the control device (MacBook Pro) and the "household playback system" (comprising one or more "playback devices") and provided by a cloud-based computing system associated with an online media service, such as turntable.fm.

[37] *See, e.g.*, '033 Patent, 12:16-20 ("FIG. 7 shows a system including a plurality of networks including a cloud-based network and at least one local playback network. The network includes a plurality of playback devices or players, though it is understood that the network may contain only one playback device.").

941. As another example, the '033 Patent describes an embodiment in which "a playback system (e.g., Sonos™) ***server*** is contacted and provided with information ***regarding selected content for playback***." *Id.*, 15:18-21. For instance, "a ***server*** is contacted regarding ***music for playback*** on a local network." *Id.*, 15:21-23. In turn, "***the server identifies and provides*** the content locally on a user's local playback system." *Id.*, 15:24-25. As one example of this function, "***the server*** can then ***start playing the music directly on the user's Sonos™ system*** …." *Id.*, 15:25-29. In this example, the "server" is "remote" of the "local playback system" (comprising one or more "playback devices") and "a third party application" that would be running on a computing device. Moreover, the "server" provides music that is selected for playback by, for instance, the local playback system. A POSITA would understand from this example along with the '033 Patent's disclosure as a whole that the "server" amounts to a "cloud-based computing system" that provides a "remote playback queue."

942. As a further example, the '033 Patent describes an embodiment in which "a shared queue is ***provided between*** the local playback system and the third party application to keep the local system and application synchronized." *Id.*, 16:64-67. Again, in this example, the "playback queue" is "remote" of both the control device (computing device running the third-party app) and the "local playback system" (comprising one or more "playback devices"). A POSITA would understand from this example along with the '033 Patent's disclosure as a whole that, for a "shared queue" to be "provided between" a control device running a third-party application and "local playback system," it is provided by a "cloud-based computing system." *See, e.g.*, *id.*, FIG. 7, 15:64-67 ("A connection between the third-party application and the local playback device (e.g., Sonos ZonePlayer™) can be direct over a local area network (LAN), remote through a proxy server in the cloud, and so on.").

943. In other words, the specification expressly considers a variety of embodiments for providing a "playback queue" including a "remote playback queue" provided by a cloud-based computing system. For example, the specification expressly considers "a local playback queue" that is on a "playback device." *See, e.g.*, *id.*, 16:59-61; *see also id.*, 16:21-27, 16:49-53. As another example, the specification expressly considers an "application-specific queue" that is on a

computing device running a media-playing application. *See, e.g.*, *id.*, 16:59-61. And as another example, the specification expressly considers a "shared queue" that is not on a "playback device" and not on a computing device running a media-playing application but rather, is provided by a "cloud-based computing system." *See id.*, 16:64-67.

944. Thus, I disagree with Dr. Bhattacharjee's assertion that a "POSITA would thus understand that at best this disclosure refers to the ability ***for the local playback system*** to include a queue that is shared between the third-party application and the local playback system." Bhatta. Op. Report, ¶690. In fact, I find Dr. Bhattacharjee's opinion that this disclosure describing "a shared queue" being "provided ***between*** the local playback system and the third party application" somehow means "***the local playback system to include*** a queue" to be directly contrary to the plain words of the disclosure.

945. As yet another example, the '033 Patent describes embodiments that "facilitate control of a local playback system ***from outside*** a household or other location at which the local playback network is configured" such that "a user can ***queue up music while away from*** his or her ***house***." '033 Patent, 17:8-11. In this example, the "playback queue" is "remote" of at least the household "playback network" (comprising one or more "playback devices"). A POSITA would understand from this example along with the '033 Patent's disclosure as a whole that this functionality involves a "cloud-based computing system."

946. It is therefore my opinion that the'033 Patent provides written description support for "a remote playback queue," as well as "a remote playback queue" that is specifically "provided by a cloud-based computing system associated with a cloud-based media service." I therefore disagree with Dr. Bhattacharjee's opinions to the contrary.

2. The '033 Patent Does Not Limit a "Remote Playback Queue" to "a Playback Queue in a Third-Party Application"

947. Dr. Bhattacharjee opines that "[t]he only other queue disclosed in the specification is a queue that the user is editing and managing in a third-party application" and "[t]o the extent there is written description support for the term 'remote playback queue' at all, that description

would only support a playback queue in a third-party application[38]." Bhatta. Op. Report, ¶691. I disagree.

948. To start, Dr. Bhattacharjee misapprehends the label "third-party" used in the teachings of the '033 Patent. As I explained before, the '033 Patent discloses techniques for transferring playback from a computing device (e.g., a smartphone) provisioned with a media-playing application to a "playback device." *Supra* ¶¶91-95. The '033 Patent generally refers to the media-playing application as a "music-playing application (e.g., browser-based application, native music player, other multimedia application, and so on) …." '033 Patent, 2:20-24, 12:6-10; *see also, e.g.*, 17:1-7 (referring to an "external application" and noting a "third party" application is one example).

949. The '033 Patent also includes specific examples in which the media-playing application takes the form of a "third party application," such as Pandora, Spotify, etc. *See, e.g.*, *id.*, 12:41-50. But, in my opinion, just because there are specific examples where the label "third-party" is used does not transform the core of the invention described in the '033 Patent from (i) a computing device provisioned with a ***media-playing*** application that can transfer playback to a "playback device" to (ii) a computing device provisioned with a ***third-party*** application that can transfer playback to a "playback device," as Dr. Bhattacharjee proposes. Rather, these examples are just that—examples of the "media-playing application" taking the form of a third-party application.

950. Moreover, the '033 Patent provides examples of a "remote playback queue" that are not limited to a "third-party" application. For example, as noted before, the '033 Patent discloses example embodiments of a "playback queue" that is not local to both a "playback device" and a computing device running a media-playing application, which the '033 Patent refers to as a "shared queue" –"[i]n certain embodiments, a shared queue is ***provided between*** the local playback system and the third party application to keep the local system and application synchronized." *Id.*, 16:64-67. In this regard, the plain language of the '033 Patent says that a "shared queue" is ***provided***

[38] I fail to see how Dr. Bhattacharjee goes from "the only other queue disclosed in the specification is a queue that the user is ***editing*** and ***managing*** in a third-party application" to a conclusion that "remote playback queue" is "a playback queue ***in a*** third-party application."

between a local playback system (containing one or more playback devices) and a third-party application; it does **not** say that the "shared queue" is ***provided by*** the third-party application. To the contrary, this passage expressly contemplates that the "shared queue" is ***not*** "in a third party application," as Dr. Bhattacharjee puts it.

951. As another example, the '033 Patent discloses embodiments of a "playback queue" that (i) is not local to at least a "playback device" located at a user's house and (ii) a user can setup and/or configure via a media-playing application agnostic to the application's "party." *Id.*, 17:8-12 ("Certain embodiments facilitate control of a local [playback device] ***from outside*** of a household or other location at which the local [playback device] is configured. For example, a user can ***queue up music while away from his or her house***. The ***application*** can facilitate setup and/or configuration."). The '033 patent then provides an "example" of such an embodiment where the media-playing application takes the form of a third-party application. *Id.*, 17:12-14 ("***For example***, a third party application may ask the user ….").

952. Lastly, I note that I have reviewed the '033 Patent's file history and I saw no instance where a "third-party application" requirement provided any sort of distinction over prior art or the like that referred more generally to a media-playing application.

953. It is therefore my opinion that the '033 Patent discloses a "third-party" application as just one example of a media-playing application.

954. Thus, Dr. Bhattacharjee's opinion that, in the '033 Patent, a "remote playback queue" is limited to "a playback queue in a third-party application" is flawed.

3. Dr. Bhattacharjee's Reliance on the Australian Prosecution Is Flawed

955. Dr. Bhattacharjee opines that his "opinion that the specification does not provide written description support for the 'remote playback queue' limitation is further supported by Sonos's Australian Patent Application No. 2020239784 …." Bhatta. Op. Report, ¶694. I disagree.

956. As an initial matter, I understand that Google sought leave from the Court to file supplemental claim construction briefing to enable Google to argue that the term "remote playback queue" means "a playback queue provided by a third-party application" based on the Australian application prosecution history. As discussed above, I understand that the Court recently denied

Google's request to file supplemental claim construction briefing. *Supra* ¶114. In doing so, I understand the Court has precluded Google (and Dr. Bhattacharjee) from arguing that the claimed "remote playback queue" is limited to a "third-party application." *Id.* In fact, I understand that the Court explained that (i) the difference in claim language between the '033 Patent and Australian application "casts doubt on the relevance of the [Australian] statements to the '033 patent," (ii) "the [Australian] statements carry too little weight to grant Google's request," and (iii) the Australian statements are merely "extrinsic" evidence. Dkt. 432, 3-4.

957. Thus, it is my understanding that Dr. Bhattacharjee's opinions regarding the Australian prosecution history are irrelevant. However, I expressly reserve my right to address Dr. Bhattacharjee's opinions regarding the Australian prosecution history to the extent that Dr. Bhattacharjee is somehow permitted to express such opinions despite the Court's recent ruling.

4. Dr. Bhattacharjee's Discussion of Commercial Implementations Is Irrelevant

958. Dr. Bhattacharjee sets forth a discussion of Sonos's commercial efforts as further support for his opinion that "Sonos was not in possession of a 'remote playback queue' to the extent the term encompasses a cloud queue …." Bhatta. Op. Report, ¶¶697-702. However, I have been informed that whether a patent's specification includes written description support for a claim limitation is dependent on the four-corners of the patent, and thus, I find Dr. Bhattacharjee's reliance on such efforts to be wholly misplaced and irrelevant.

959. In this regard, I understand that patent applicants often file patent applications that describe products, technology, features, and the like that are not yet (if ever) commercially released. Indeed, I understand that this practice is a primary value of patent applications and even an express goal of the United States' patent system.

960. Thus, contrary to Dr. Bhattacharjee's opinions, that Sonos or its licensees do not make a "computing device" that practices claim 1 of the '033 Patent says nothing about written description support in the '033 Patent for a "remote playback queue." *See id.*, ¶697. Likewise, that Sonos did not have a commercial implementation of a "cloud queue" by 2011 says nothing about written description support in the '033 Patent for a "remote playback queue." *See id.*, ¶698. In fact, I understand that Google did not have a real-world implementation of a "cloud queue" until well

after Google started working with Sonos in 2013.

961. Further, Dr. Bhattacharjee's reliance on Sonos's commercial efforts around the time of the invention of the '033 Patent to limit the '033 claims to involve a "third-party" application is misplaced. *See id.*, ¶702. I understand that, at the time of invention, Sonos sold hardware products and provided a "controller" application that had no media-playback capabilities, but Sonos did not offer a streaming online service or media-playing application. Thus, it makes sense that Sonos internally referred to some examples involving its "Play to Sonos" (or "Direct Control") initiative in terms of a "third-party" media-playing application that could transfer playback to a Sonos hardware product. However, as I explained, the teachings of the '033 Patent are not limited to a "third-party" application and the '033 Claims themselves do not recite an "application," much less one "provided by a third-party."

D. Limitation 1.7

962. Dr. Bhattacharjee opines "[n]ot only does the '033 patent fail to disclose a 'remote playback queue,' … but there is also no description of the playback device receiving an instruction that configures it to (i) 'communicat[e] with the cloud-based computing system in order to obtain data identifying a next one or more media items that are in the remote playback queue,' and (ii) 'use the obtained data to retrieve at least one media item in the remote playback queue from the cloud-based media service.'" Bhatta. Op. Report, ¶712. I disagree.

963. As an initial matter, as I explained in my Opening Report, the '033 Patent describes control devices (e.g., "network-enabled portable devices," such as smartphones) that connect to the same local "data network" as the "playback devices" and are capable of controlling the operation of the "local playback system" (such a control device is sometimes referred to as a "controller" in the specification, while the '033 Patent claims refer to a "computing device"). *See, e.g.*, '033 Patent, 3:39-41 ("A controller 130 … provides control to the system configuration 100."), 4:61-5:19 ("The controller 300 can correspond to the controlling device 130 of FIG. 1. The controller 300 is provided with a touch screen 304 that allows a user to interact with the controller 300, for example, to retrieve and navigate a playlist of audio items, ***control operations*** of one or more zone players, and ***provide overall control*** of the system configuration 100…."), 12:16-27 ("FIG. 7 shows

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DOUGLAS C. SCHMIDT